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## ABSTRACT OF THE DISCLOSURE

Resists can be removed while metal contamination of wafers, etc. and generation of particles, and growth of oxide films are suppressed.

An ozone gas feed system 40 for feeding ozone gas 2 into a processing vessel 10 holding wafers W, and a steam feed means 30 for feeding steam 1 into the processing vessel 10 are provided. An on-off valve 49 inserted in the ozone gas feed pipe 42, an on-off valve 36 inserted in the steam feed pipe 34 and a switch 48 and an on-off valve 49 of ozone gas generator 41 are connected to CPU 100 which is control means and are controlled by the CPU 100. Ozone gas 2 is fed into the processing vessel 10 to pressurize the atmosphere surrounding the wafers W, and then steam 1 is fed into the processing vessel 10 while ozone gas 2 is fed into the processing vessel 10, whereby a resist of the wafers W can be removed with the steam 1 and the ozone 2 while metal corrosion, etc. can be prevented.